

Nishita et al was submitted with Applicant's prior response and Applicant is well acquainted with its disclosure. The reference is directed to modeling of natural light, that considers both direct sunlight and scattered ambient light. The "skylight" is modeled as a hemisphere with a large radius. The hemisphere is subdivided into bands and the light intensity of individual bands is calculated.

The POV-Ray reference is directed to software used to create three-dimensional, photo-realistic images using a rendering technique called ray-tracing. The program description section of the documentation, not cited by the Office Action, provides further description of the software. "It [The program] reads in a text file containing information describing the objects and lighting in a scene and generates an image of that scene from the view point of a camera also described in the text file. *Ray-tracing is not a fast process by any means*, but it produces very high quality images with realistic reflections, shading, perspective and other effects." {emphasis added}

The POV-Ray reference is in fact a good example of a prior art system that creates the type of soft light transition effect produced by the spherical pseudo area light. It is a brute force, calculation intensive method that makes no attempt at the cognitive leap necessary to reduce or eliminate its computational cost.

With respect to the rejection of claims 1-10, Applicant respectfully asserts that the obviousness rejection is improper because 1) the references fail to teach or suggest all of the elements of the claims; 2) the rejection fails to proffer sufficient motivation to combine the references; and 3) fails to consider or overcome the indicia of nonobviousness provided in the specification and discussed in Applicant's previous response.

Independent claims 1 and 7 recite, in part, approximating by “use of a plurality of point sources.” In the Office Action, paper #10, page 3, numbered paragraph 5, the Examiner cited p.125, 2nd column, last ¶, of *Nishita et al.* as disclosing the approximation the illumination effect by the use of a plurality of point light sources. However, as discussed above, *Nishita et al.* fails to disclose the approximation by a plurality of point light sources, but rather computes the illuminance of “band sources.”

While *Nishita et al.* does discuss “sky elements”, p. 127, column 2, 4th paragraph, it is the illuminance of the bands that are calculated. The Office Action has failed to show that calculations using bands of a hemisphere are equivalent to the use of point light sources. As discussed in the specification, point light sources are more efficient from a computational standpoint. As such, Applicant respectfully asserts that the rejection is improper for failing to teach or suggest all of the elements of the claims.

In addition, the rejection fails to proffer sufficient motivation to combine the references. The Office Action alleges that the incorporation of POV-Ray’s light source into the calculations of *Nishita et al.* would “provide a more accurate image because of the ability to account the “umbra” of a light source.” Applicant respectfully asserts that one of ordinary skill in the art would not have been motivated to combine the references, given the Examiner’s motivation.

The POV-Ray disclosure discusses that the area lights are in an array, “usually a 3*3 or a 5*5 array.” Given such light sources, it is not understood how the methodology of *Nishita et al.*, i.e. dividing a hemisphere up into bands, would be applicable. Indeed, as discussed below, the incorporation of an array of light sources would increase the time required to render the computer graphics. It is not understood how the

incorporation of the methodology of Nishita et al. would be a benefit to one of ordinary skill in the art, given the motivation provided in the rejection. As such, Applicant respectfully asserts that one of ordinary skill in the art would not have been motivated to combine the references, as alleged in the rejection.

In addition, the rejection fails to consider or overcome the indicia of nonobviousness provided in the specification and discussed in Applicant's previous response. When evidence of any secondary considerations is submitted, the Examiner must evaluate the evidence. M.P.E.P. 2141.

The rejection alleges, in effect, that the POV-Ray software, coupled with *Nishita et al.*, can approximate the effect of any type of area light source and that such approximation is an obvious extension of *Nishita et al.* However, if such an extension were obvious, it would be in widespread use throughout the industry. This is due to the fact that the cost of implementing a spherical pseudo area light is virtually nil, and the effect is much more realistic illumination. The pursuit of realism and lower computational cost are the two dominant driving forces in the industry. The fact that such an implementation, which addresses both these goals, does not exist is a clear demonstration that such an extension is not obvious.

In addition, even if the references were somehow combined, they would not reduce computation time nor cost. As discussed above, the POV-Ray software teaches away from efficiency and instead emphasizes photo-realistic results. The combination of references cited in the rejection would not provide the benefits of the present invention. The Examiner is respectfully requested to consider the above noted benefits in reconsidering the prior rejections.

As such, Applicant respectfully asserts that the rejection of claims 1-10 is improper and should be withdrawn. Applicant also respectfully requests that the application be allowed to proceed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the Applicant's undersigned attorney at the indicated telephone to arrange for an interview to expedite this position of this application.

In the event this paper is not being timely filed, the Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to counsel's Deposit Account No. 01-2300.

Respectfully submitted,

ARENT FOX KINTNER PLOTKIN KAHN, PLLC



Kevin F. Turner
Attorney for Applicant
Reg. No. 43,437

Atty. Docket No. 022972-00007
1050 Connecticut Avenue, N.W., Suite 600
Washington, D.C. 20036-5339
Tel (202) 857-5000
Fax (202) 638-4810

KFT:cla